

WHAT IS CLAIMED IS:

1. An electro-optical device, comprising:
a thin film transistor formed on a substrate;
a pixel electrode electrically connected to a drain region of a semiconductor
5 layer of said thin film transistor;
a plurality of interconnection lines disposed between said semiconductor layer
of said thin film transistor and said pixel electrode via an insulating film;
an intermediate conductive layer that electrically connects said drain region of
said semiconductor layer of said thin film transistor and said pixel electrode; and
10 a first contact hole formed in an area under at least one of said plurality of
interconnection lines, said first contact hole electrically connecting said drain region of said
semiconductor layer of said thin film transistor to said intermediate conductive layer.
2. The electro-optical device according to claim 1, said first contact hole having a
diameter that is smaller than a diameter of a second contact hole that electrically connects
15 said intermediate conductive layer to said pixel electrode.
3. The electro-optical device according to claim 1, at least one of said plurality of
interconnection lines serving as a data line electrically connected to a source region of said
semiconductor layer of said thin film transistor, and said first contact hole being located in an
area under said data line.
- 20 4. The electro-optical device according to claim 3, said first contact hole being
disposed near a location where said data line and said scanning line cross each other.
5. The electro-optical device according to claim 3, at least one of said plurality of
interconnection lines serving as a scanning line extending in a direction crossing said data
line, and said intermediate conductive layer extending along said scanning line from an area
25 of said data line.
6. The electro-optical device according to claim 4, further comprising a second
contact hole, via which said intermediate conductive layer and said pixel electrode are
electrically connected to each other, formed in an area where said intermediate conductive
layer extends along said scanning line.

7. The electro-optical device according to claim 6, said second contact hole being formed at a substantially middle location between adjacent data lines.

8. The electro-optical device according to claim 3, said intermediate conductive layer extending along said data line.

5 9. The electro-optical device according to claim 1, at least one of said plurality of interconnection lines serving as a capacitance line which extends under said intermediate conductive layer while avoiding an area where said first contact hole is formed.

10 10. The electro-optical device according to claim 1, said first contact hole having a depth that is smaller than a depth of a second contact hole formed between said intermediate conductive layer and said pixel electrode.

11. The electro-optical device according to claim 4, said intermediate conductive layer being disposed at least partially opposite to a capacitor electrode formed of a film forming said scanning line via an interlayer insulating film.

15 12. The electro-optical device according to claim 11, further comprising a second contact hole formed at a location which overlaps, in plan view, with said capacitor electrode.

13. The electro-optical device according to claim 11,
said capacitor electrode comprising a part extending along said scanning line and a part extending along said data line from a location where said capacitor electrode and said data line cross each other, in plan view, and

20 said intermediate conductive layer overlapping, at least partially, with said capacitance electrode via an interlayer insulating film.

14. The electro-optical device according to claim 1, said intermediate conductive layer comprising a light-shielding conductive film.

25 15. The electro-optical device according to claim 14, said intermediate conductive layer comprising a part of a light-shielding area.

16. The electro-optical device according to claim 15, said intermediate conductive layer comprising a part extending along said data line in plan view, and said part defining a part of said light-shielding area along said data line.

17. The electro-optical device according to claim 16, further comprising capacitor electrode which includes a part extending along said data line in plan view, and

in an area along said data line, a width W_d of said data line, a width W_c of said capacitor electrode, and a width W_m of the part, extending along said data line, of said intermediate conductive layer are selected so as to satisfy a condition $W_d < W_c < W_m$.

18. The electro-optical device according to claim 17, an edge portion, extending along said data line, of said pixel electrode overlapping with an edge portion of said intermediate conductive layer.

19. The electro-optical device according to claim 3, said semiconductor layer being formed in an area under said data line.

20. The electro-optical device according to claim 19, said first contact hole being formed at a location symmetrical to a location of a third contact hole via which the source region of said semiconductor layer and said data line are connected to each other, with respect to a channel region of said semiconductor layer.

21. The electro-optical device according to claim 19, further comprising:
a lower light-shielding film disposed under said semiconductor layer which projects, in plan view, from said scanning line, and
a second contact hole via which said intermediate conductive layer and said pixel electrode are electrically connected to each other, the second contact hole being located in an area into which said lower light-shielding film projects, in plan view, from said scanning line.

22. An electro-optical device, comprising:
a thin film transistor formed on a substrate;
a data line electrically connected to a source region of a semiconductor layer of said thin film transistor;
a pixel electrode electrically connected to a drain region of said semiconductor layer of said thin film transistor;
a light-shielding intermediate conductive layer that electrically connects the drain region of said semiconductor layer of said thin film transistor and said pixel electrode;

a capacitance line disposed in the drain region of said semiconductor layer of said thin film transistor which extends along said data line;

a light-shielding film formed of a film forming said intermediate conductive layer; and

5 a contact hole via which said capacitance line and said light-shielding film are electrically connected with each other in an area under said data line.